DOCUMENT RESUME

ED 362 942 EA 025 247

AUTHOR Werf, Greetje van der
TITLE Differences in School and Instruction Characteristics between Highly, Average, and Low Effective Schools.
PUB DATE Jan 93
NOTE 9p.; Paper presented at the Annual Meeting of the International Congress for School Effectiveness and Improvement (Norrkoping, Sweden, January 1993).
PUB TYPE Reports - General (140) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Disadvantaged Youth; *Educational Objectives; Elementary Secondary Education; Foreign Countries; *Socioeconomic Background; *Socioeconomic Status; *Student Development
IDENTIFIERS *Netherlands

ABSTRACT

The Dutch Educational Opportunity Program was begun in 1988 to improve educational achievement of Dutch low socioeconomic status (SES) children and children from ethnic minorities. A longitudinal study was done of children in grades 4, 6, and 8 at 700 primary schools. Every 2 years the children were tested for intelligence, arithmetic, and Dutch language. After evaluation of two testing periods, it appears that achievement among the disadvantaged groups has not improved in comparison with a representative reference group. However, when analyzing the data in more detail, taking into account the children's SES, ethnic background, and intelligence, remarkable differences can be found in effectiveness between schools in arithmetic and Dutch language proficiency. Data were gathered on about 50,000 students tested in grade 4, 6, and 8 in 1988 and in 1990 in about 600 primary schools. Results suggest that in the future the quality of education should be monitored closely. Many of the failures in helping disadvantaged children result from the misconception that education should be adapted to the development level of the child. Education should be modeled around the concept that all students can reach desired goals, but some may require more time and instruction. (JPT)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 362 942

Differences in school and instruction characteristics between highly, average and low effective schools.

Greetje van der Werf
RION, Institute for Educational Research
University of Groningen, The Netherlands

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

G. van der Werf

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

EA 025 247

Differences in school and instruction characteristics between highly, average and low effective schools.

Greetje van der Werf
RION, Institute for Educational Research
University of Groningen, The Netherlands

1. INTRODUCTION

In 1988 we started the evaluation of the Dutch Educational Priority Program, that is aimed at the improvement of educational achievements of Dutch low SES children and children from ethnic minorities. The evaluation consists of longitudinal cohort studies of all children in grade 4, 6 and 8 of 700 primary schools. Every two years these children are tested for intelligence, arithmetic and Dutch language. Information about school and instruction characteristic the children are confronted with is collected from school principals and teachers. Until now three measurements have taken place, the data of two measurements have been analyzed.

Overall, it appears that, since the introduction of the Priority Program, the achievements of the disadvantaged groups of children have not improved at all in comparison with the achievements of a reference group of children that is representive for all Dutch primary school children. So, in general the Priority Program did not appear succesfull thus far.

However, when analyzing the data of the schools more in detail, taking into account the childrens' SES, ethnic background and intelligence, we must conclude that there are remarkable differences in effectiveness between schools in terms of arithmetic and Dutch language achievement. The data of the first as well as the second measurement show that between 9 and 12% of the variance in students' achievements is 'between-school-variance', depending on grade and subject. However, only a few school and instruction characteristics can explain this variance. Besides those characteristics differ also with grade and subject.

From other research it is well-known that the consistency of effectiveness across grades and school years is not very high (Van Batenburg, 1990; Bosker, 1991). This could explain why also the consistency of the related school and instruction characteristics is low.

The aim of this paper is to look more in detail to the effectiveness of schools across grades and school years and to find out which variables on school and teacher level can explain the difference in consistent effectiveness between schools.

The research questions are the following:

1. Are there any schools that are highly, average or low effective across grades and across school years?
2. To what extent do these groups of consistently high, average and low effective schools differ in achievement scores for different groups of students?
3. Which school and instruction characteristics are related to the differences in consistent effectiveness?

EA025217

2. THEORETICAL FRAMEWORK.

The general theoretical model of the research is given by the literature about school and instructional effectiveness. In the model school level variables are considered to be conditional for effective instruction within and across classrooms (Scheerens, 1989; Creemers, 1991). The most important school level variables are: educational leadership, emphasis on learning basic skills, high expectations of students' achievements and participation of parents within the school. As effective instructional variables are considered those that have appeared effective for students in general (Good & Brophy, 1986; Walberg, 1986; Creemers, 1991) as well as for specific groups of disadvantaged students (Slavin & Madden, 1989; Levine & Lezotte, 1990; Levin, 1990). The following instruction variables are taken into account: opportunity to learn, time on task, grouping of students, evaluation and feedback and classroom climat.

3. METHOD.

3.1 Dataset

In order to answer the research questions the data of all schools who co-operated with the two measurements of the evaluation of the priority program were analyzed. The dataset contains the data of about 50.000 pupils tested in grade 4, 6 an 8 in 1988 and in 199o in about 600 primary schools, as well as the data about the instructional characteristics of teachers who were teaching the respective grades in 1988 and 1990, as well as the data about the school characteristics, gathered from the principals in 1988 and 1990.

3.2 Variables and instruments

To determine the differences in consistent effectiveness between schools we used the students' arithmetic scores, because arithmetic scores in general are explained the most by schools and the least by individual student characteristics. The arithmetic scores were measured by an arithmetic test, containing 40 items. As co-variates were taken into account the students' scores on the performal part of an intelligence test and the students' weight factor. This weight factor is the indicator of the socio-economical and ethnic background of the children. The weight factor for a Dutch low SES child is 1.25, the weight factor for a low SES ethnic minority child is 1.90. The school and instruction variables to which eventual differences between schools can be ascribed were measured by written questionnaires, consisting of Likert scales or single items, to be filled in by principals and teachers. The reliability of the scales all were satisfying (.60 - .87).

3.3 Procedure

In order to answer the first research question firstly the data were analyzed by means of the multi level program VARCL (Longford, 1988) for each grade and each school year seperatly. As co-variates the students' intelligence score and their weight factor were taken into account. After that we computed for each school the intercept

deviances from the grand mean for each grade and each school year seperatly. Schools with an intercept deviance of two or more standard deviations above or beneath the grand mean were selected as highly respectively low effective for the respective grades and school years. Schools with an intercept deviance near zero were selected as average. Finally schools that were highly, average or low effective for all grades in both school years were selected as consistantly high, average or low effective. The differences in school and instruction variables between the three selected groups of schools were analyzed by means of one-way variance analyses with a significance level of $p < .01$.

4. RESULTS

4.1 Differences in effectiveness between schools

To determine the differences in effectiveness between schools for the different grades and school years separately, we used, as was said before, the multi level program VARCL. Firstly we specified the 'empty' model, the model without students' and school and instruction characteristics. Subsequently intelligence and weight factor were added as fixed co-variates to the model. The percentage of variance left indicates the extent to which schools differ in effectiveness. In table 1 the proportion of variance on pupil and school level are presented for arithmetic in grade 4, 6 and 8 in 1988 and 1990.

Table 1 Percentages of variance on pupil and school level per grade and per schoolyear (model with pupil co-variates).

	School year 1988			Schoolyear 1990		
	grade 4	grade 6	grade 8	grade 4	grade 6	grade 8
Pupil level	59%	62%	55%	58%	63%	56%
School level	15%	8%	11%	15%	9%	14%
total	74%	70%	66%	73%	72%	70%
var. expl.	26%	30%	34%	27%	28%	30%

In both schoolyears and in all grades a substantial proportion 'between-school-variance' is left. So it must be possible to select schools on differences in effectiveness. Therefore we rankordered the schools per grade per schoolyear on the intercepts (mean artithmetic scores after correction for individual weight factors and intelligence scores. Schools that deviate two or more standard deviations above or beneath the grand mean for each grade in each schoolyear were selected as consistently high or low effective. Schools with a deviance for each grade in each schoolyear near zero were selected as consistently average effective. From the 600 schools only 10 appeared as consistently high effective, 12 as consistently low effective and 18 as

consistently average effective.
In table 2 we can see what these schools mean for the arithmetic scores of the different groups of children. For the ease of survey only the arithmetic scores in grade 8 in 1990 are presented. The scores are raw scores, i.e. they are not corrected for intelligence.

Table 2 Mean arithmetic scores in grade 8, 1990, in highly, average and low effective schools per weight factor.

	weight factor	mean score
Low effective	1.00	22
	1.25	18
	1.90	16
Average effective	1.00	28
	1.25	25
	1.90	24
Highly effective	1.00	34
	1.25	32
	1.90	31

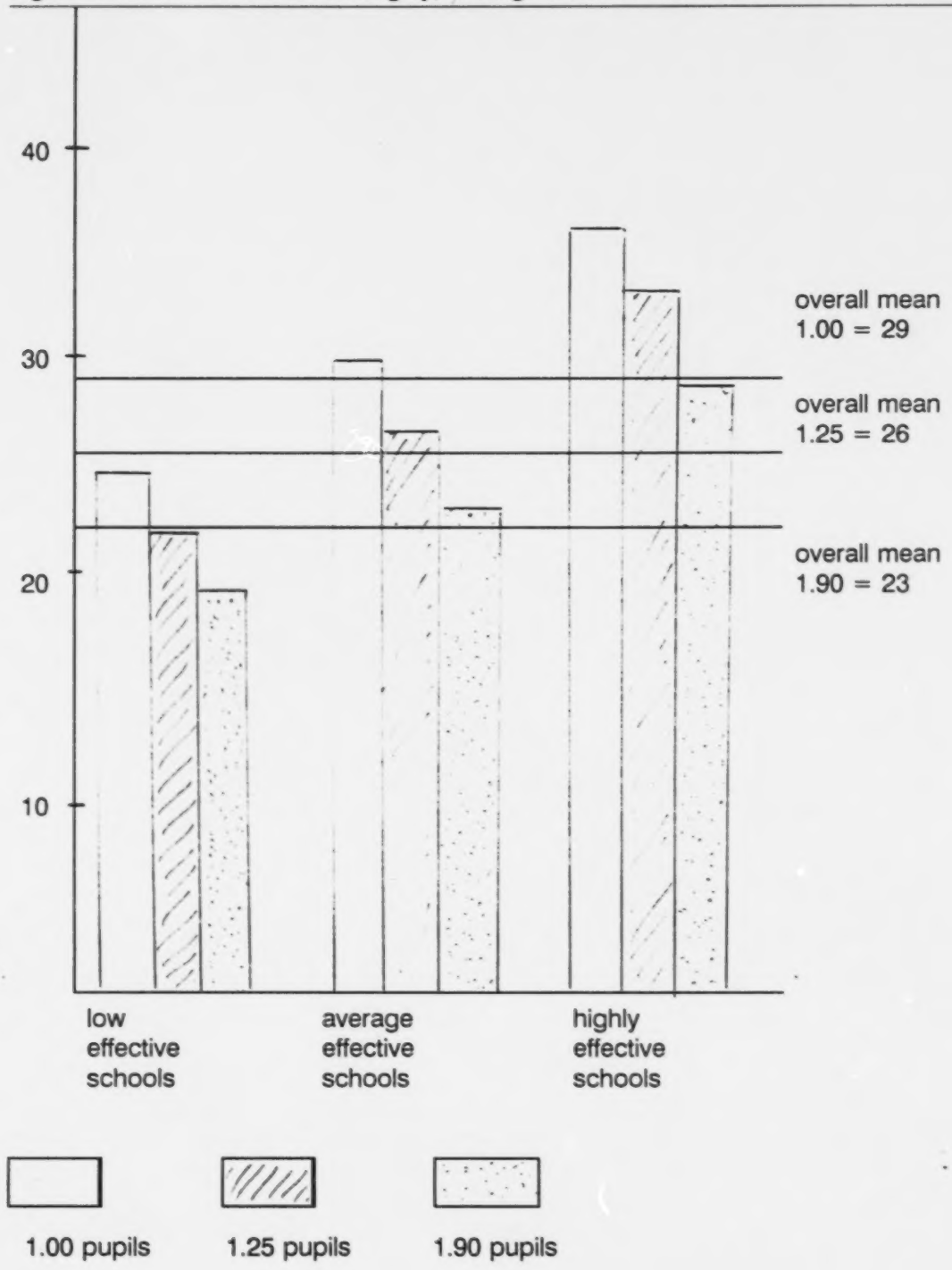
Mean score reference group: 27 (100 : 29; 1.25 : 26; 1.90 : 23).

On the highly effective schools all groups of children (also the 1.25 and 1.90 children, the target groups of the priority policy) score far above the national reference group. The average effective schools score for the 1.25 children a bit lower than the 1.25 children in the reference groups, for the 1.90 children a bit higher compared to the 1.90 children in the reference group. The low effective schools score for all groups of children a beneath the national reference group. Furthermore it appears that the difference between the children from the target groups and the 1.00 children on the highly effective schools is smaller compared to the difference in the reference group. So a highly effective school not only is favourable for Dutch middle class children but also for Dutch low SES and ethnic minority children.

To keep the comparison completely fair I also will show the estimates of the arithmetic scores for any other 1.00, 1.25 and 1.90 students, with comparable intelligence scores, for each of the three groups of schools. The overall mean score of all 1.00 students is 29. The estimated score for the 1.00 students on the three groups of schools is the sum of the overall mean score and the intercept deviance. In the group of low effective schools the intercept deviance varies between -4 and -6. The estimated scores of 1.00 children on these schools are 4 till 6 points beneath 29. For the highly effective schools the intercept deviance varies between +4 and +6. The estimated scores of the 1.00 children on these schools are 4 till 6 points above 29. The same can be done for the 1.25 and 1.90 children. The estimated scores for the 1.25 children on highly and low effective schools are 4 till 6 points above respectively beneath 26, so between 32 and 20. For the 1.90 children the estimates are 4-6 points above or beneath 23, so between 29 and 17. On a test with 40 items these are

remarkable differences.

Figure 1 Estimated scores for highly, average and low effective schools



Between the groups of schools differences are tested in school and instruction characteristics, to see wether the differences in effectiveness have something to do with the educational organization and content of the schools.
The results are in table 3.

Table 3 Differences in school and instruction characteristics between schools

Characteristics	Mean scores			Range of score
	low eff. eff.	average eff.	highly eff.	
School characteristics				
Educational leadership	18	19	13	11-33
Consensus about goals	6.3	7.3	6.8	4-12
Instructional characteristics				
whole classroom instr.	3.2	3.7	4.2	1-5
ability grouping	2.7	2.0	1.8	1-5
minimum goals	2.1	1.5	1.4	1-3
% time for organization	4.6	3.5	1.9	
% time for evaluating learning tasks	5.4	6.8	9.8	
% time for classroom instr.	9.4	11.7	15.7	
% time seatwork	3.4	2.6	2.0	
amount of lessons spent on arith.	4.5	5.0	5.0	
correcting and hearing learning tasks	3.0	2.9	2.3	1-4
homework	5.3	6.0	7.4	3-15
use of method	2.2	1.7	1.7	1-3
% learning content	77	96	95	
registration mastering learning content	3.3	3.8	4.1	1-5

The groups of schools appear to differ on only two school level characteristics: educational leadership and consensus about the educational goals. Striking is that both characteristics are more present on the low and average effective schools. With regard to the instructional characteristics the picture is clear and consistent. The high effective schools give more instruction towards whole class rooms, work less in ability groups, have more often minimum goals, spend more hours to arithmetic, spend less time of the lesson on organizational activities and more time on classroom instruction and evaluation of learning tasks. On the other hand teachers give less individual seatwork and correct and hear less often learning tasks. This could be related to the fact that they evaluate the work with the whole classroom. Highly effective schools give more homework and more often additional homework to disadvantaged students.

Concerning the methods, they use this more often in agreement with the prescriptions and they treat more learning content during the school year. Finally they registrate more often whether the students master the learning content.

5. CONCLUSION

For the future of the educational priority program it is very important that the quality of education will be watched carefully. As a consequence of the growing attention for specific measures for disadvantaged children, like for example pre school projects, second language education, etc, the importance of effective education within classrooms is doomed to be pushed to the background. This leads to a situation in which the eventual advantage of specific measures could be lost because disadvantaged children are confronted with contra productive educational strategies during a substantial amount of their school period. A lot of these contra productive strategies originated, in my opinion, from the deeply rooted mis conception that education should be adapted to the developmental level of individual students. The starting point however should be that all students can reach the desired final educational goals, but that some students therefore need more time, more instruction and more excersize. Besides, also the quality of instruction is important: clear instruction, structuring the learning content, evaluating adequatly the mastery of the minimum goals and giving positive feedback.
So, measures to improve the quality of education within classrooms, are in my opinion, the most important to improve the educational opportunities of Dutch low SES and ethnic minority children.